# Accuracy of Corticosteroid Injection into the Thumb Basal Joint without Image Guidance

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INTRODUCTION:

Corticosteroid injections are frequently used to diminish inflammation and relieve the pain of basal joint arthritis. However, the efficacy of intraarticular compared to extraarticular injection has not been established. The purpose of this study is to investigate the accuracy of thumb basal joint injections performed without image guidance in an office setting, as well as establish the short-term efficacy of corticosteroid injection using patient-reported outcome measures.

METHODS:

IRB approval was obtained. Patients with basal joint arthritis without a history of prior injection were prospectively enrolled. Enrolled patients were given 1.5cc injections into the basal joint with equal parts steroid, local anesthesia, and radiopaque dye. No image guidance was used for the injection. Immediately post-injection, fluoroscopy imaging was performed to evaluate the location of the injectate [Figure 1a, 1b, 1c]. After 6 weeks, a VAS score, Thumb Disability Score (TDX), and QuickDASH score were obtained for each patient.

RESULTS:

Thirty-seven patients (43 thumbs) were enrolled and injected. Thirty-three of 43 (76.7%) of the injections were found to be intraarticular. Ten of 43 (23.3%) were extraarticular. Of the 33 intraarticular injections, 26 (78.8%) had extravasation of the contrast dye. Most often, the dye extravasated along the abductor pollicis longus (APL) tendon sheath (81.8%), and occasionally it tracked volarly along with the APL (12.1%). The dye tracked dorsally instead of the APL 15.1% of the time. 4 patients were lost to follow up. Thirty-three patients (39 thumbs) completed 6-week follow-up. After 6 weeks, the mean QuickDASH score declined 23.5 points, the mean TDX score declined 26.7 points. The average VAS pain scores decreased from 6.5 pre-injection to 2.6 at 6-week follow-up. When comparing patients who had intraarticular injections to patients who had extraarticular injections, the decrease in QuickDASH scores, VAS pain scores, and TDX scores after 6 weeks were similar between the two groups, but this did not reach statistical significance [Table 1].

DISCUSSION AND CONCLUSION: This study concludes that basal joint injections can be reliably performed without image guidance. Soft tissue extravasation is common after basal joint injection in arthritic thumbs and tends to track along the APL tendon. In summary, corticosteroid injections provide excellent short-term improvement in pain and function in patients with basal joint arthritis.

**Figure 1a:** A representative fluoroscopy image showing intraarticular corticosteroid injection without soft tissue extravasation

**Figure 1b:** A representative fluoroscopy image showing intraarticular corticosteroid injection with soft tissue extravasation

**Figure 1c:** A representative fluoroscopy image showing extraarticular corticosteroid

**Table 1.** Average change in patient outcome scores from pre-injection to 6 weeks post-injection in patients receiving basal joint injections

| | Intraarticular Injections (n=33) | Extraarticular Injections (n=10) |
|---|---|---|
| **QuickDASH** (mean ± SD) | 21.9 ± 8.8 | 30.2 ± 13.9 |
| **VAS Pain** (mean ± SD) | 4.1 ± 1.2 | 4 ± 2.4 |
| **Thumb Disability** (mean ± SD) | 24.2 ± 11.3 | 35.5 ± 19.8 |